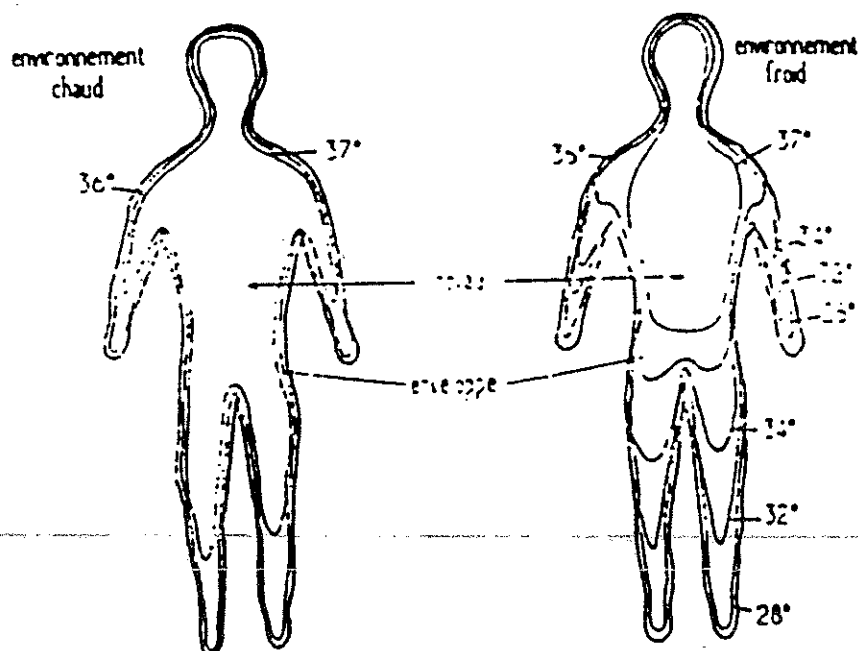
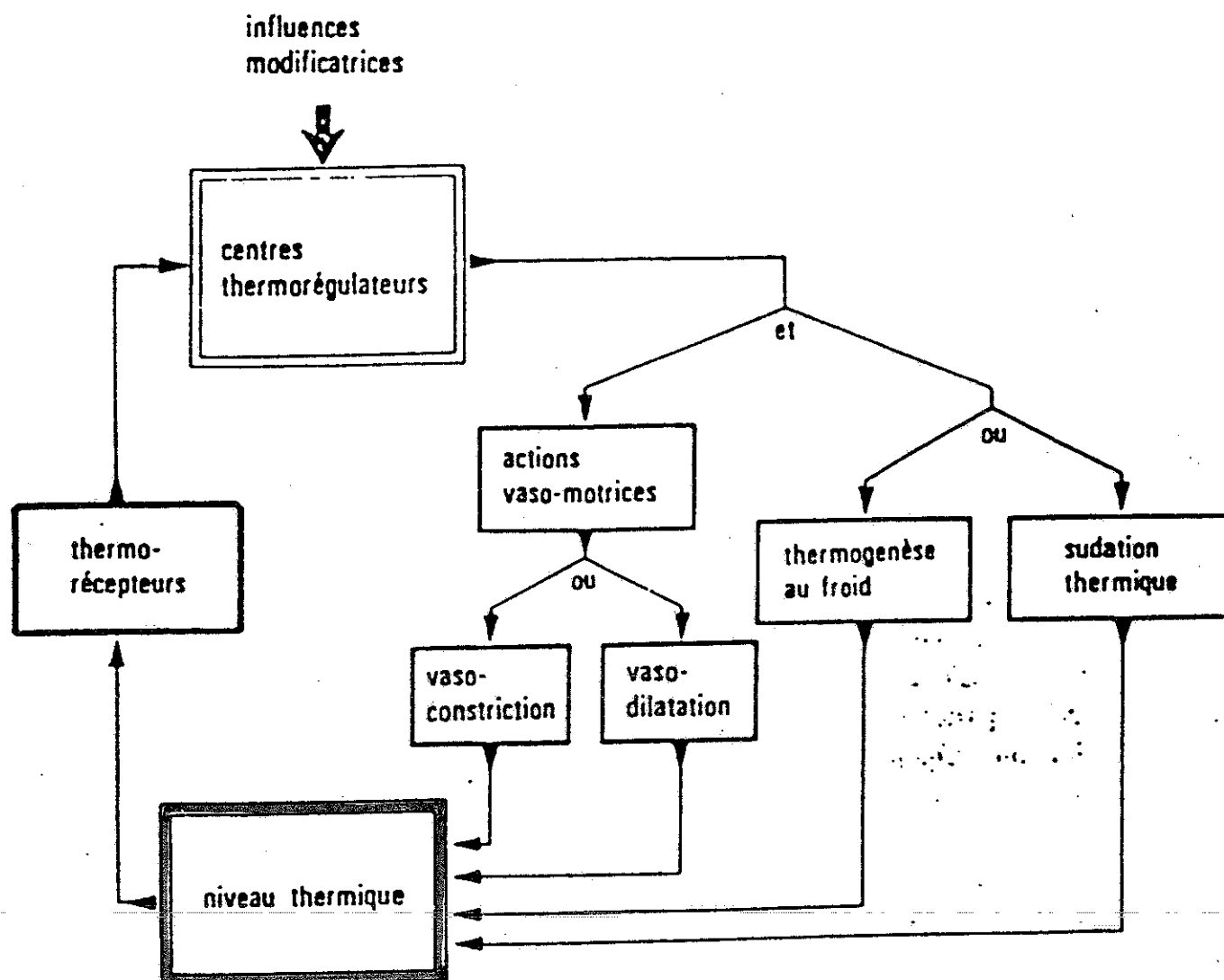


LES SOLLICITATIONS THERMIQUES

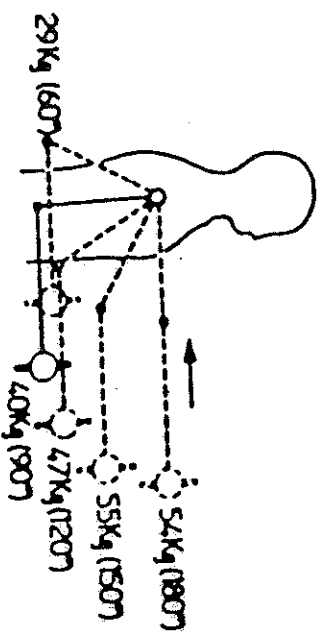
Schéma général de la boucle de régulation.



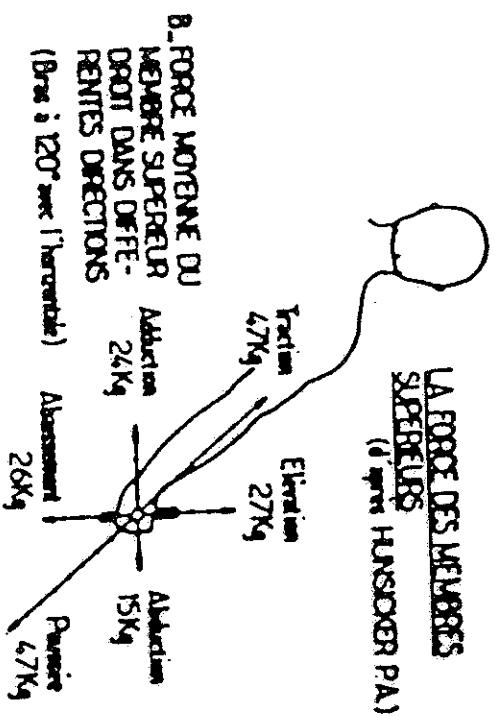
VARIATIONS DANS LA DISPOSITION DES ISOTHERMES CORPORELS SUIVANT

LE TRAVAIL MUSCULAIRE

| NATURE DE L'EFFORT | ANGLE DU COUDE | CENTILES (kg) |
|--|-------------------|---------------|
| | | |
| Pour le travail musculaire local la règle consiste à limiter les efforts à 20% de la capacité maximale disponible. | | |
| | | |



A. FORCE MOYENNE DU BRAS DROIT EN TRACTION SELON LE DEGRÉ D'EXTENSION



| NATURE DE L'EFFORT | ANGLE DU COUDE (degrés) | CENTILES (kg) | | | ECART-TYPE (kg) |
|--------------------|-------------------------------|----------------|-----------------|-----------------|--------------------|
| | | | | | |
| | | 5 ^e | 50 ^e | 95 ^e | |
| Poussée | 60 | 15,4 | 41,7 | 68,0 | 17,2 |
| | 90 | 16,2 | 39,0 | 69,8 | 15,0 |
| | 120 | 16,3 | 46,7 | 78,0 | 18,5 |
| | 150 | 19,0 | 55,8 | 88,0 | 20,4 |
| | 180 | 22,7 | 62,6 | 96,3 | 22,2 |
| Traction | 60 | 10,9 | 28,6 | 33,6 | 10,4 |
| | 90 | 16,8 | 39,9 | 61,2 | 13,6 |
| | 120 | 19,0 | 47,2 | 69,8 | 14,1 |
| | 150 | 25,4 | 55,3 | 65,7 | 16,3 |
| | 180 | 23,6 | 54,4 | 77,6 | 16,8 |
| Elevation | 60 | 9,1 | 22,2 | 37,2 | 8,2 |
| | 90 | 9,1 | 25,4 | 48,1 | 10,0 |
| | 120 | 10,9 | 27,2 | 56,2 | 10,9 |
| | 150 | 8,2 | 25,4 | 53,5 | 12,7 |
| | 180 | 6,3 | 19,5 | 39,9 | 10,0 |
| Abaissement | 60 | 9,1 | 23,1 | 40,4 | 9,5 |
| | 90 | 11,8 | 24,0 | 39,9 | 9,1 |
| | 120 | 11,8 | 26,3 | 44,4 | 10,4 |
| | 150 | 9,1 | 21,2 | 36,3 | 8,2 |
| | 180 | 7,7 | 18,6 | 37,2 | 8,2 |
| Rotation interne | 60 | 9,1 | 23,6 | 39,5 | 8,6 |
| | 90 | 8,2 | 22,7 | 44,0 | 10,4 |
| | 120 | 10,0 | 24,0 | 46,4 | 11,8 |
| | 150 | 9,1 | 24,5 | 47,2 | 11,3 |
| | 180 | 9,1 | 22,7 | 47,2 | 11,8 |
| Rotation externe | 60 | 7,7 | 18,0 | 37,2 | 9,1 |
| | 90 | 7,3 | 16,8 | 30,8 | 8,2 |
| | 120 | 6,8 | 15,4 | 28,1 | 7,7 |
| | 150 | 6,8 | 15,0 | 28,0 | 8,2 |
| | 180 | 6,3 | 15,4 | 28,1 | 10,9 |

ANTHROPOMETRIE

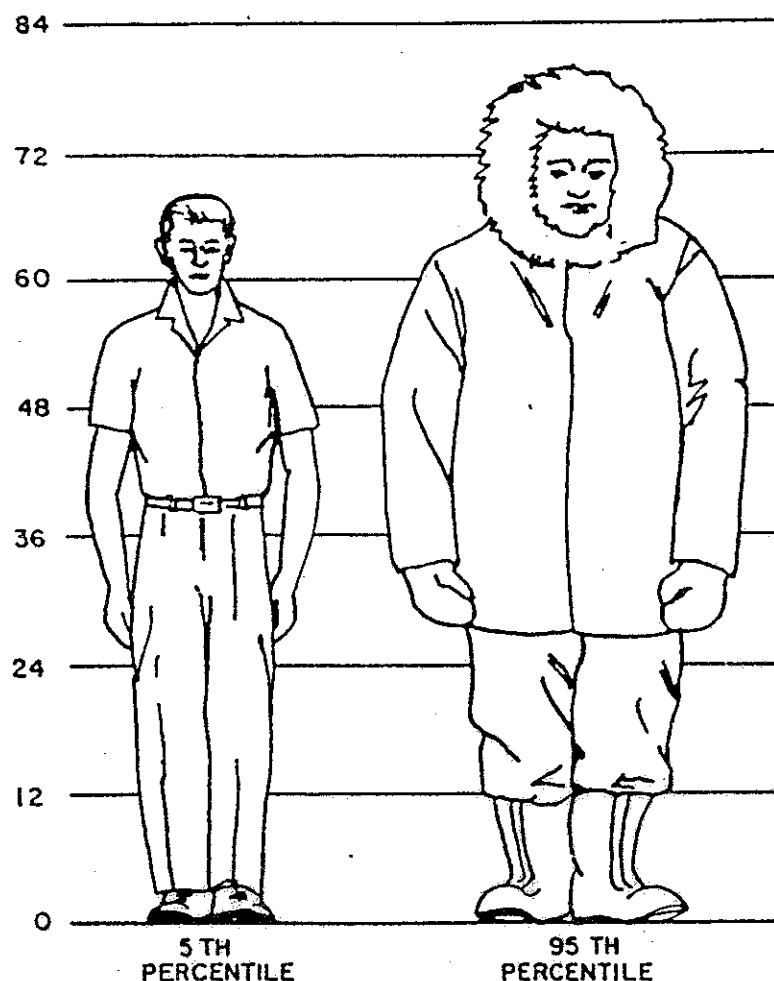


FIGURE 11-1. Comparison of normally clothed 5th-percentile civilian with 95th-percentile soldier in arctic clothing.

TABLE 11-11. STATURE: NUDE U.S. MALE MILITARY PERSONNEL

| Population | Percentiles (in.) | | | | | S.D. |
|-----------------------------------|-------------------|------|------|------|------|------|
| | 1st | 5th | 50th | 95th | 99th | |
| Air Force personnel* | 63.5 | 65.2 | 69.1 | 73.1 | 74.9 | 2.44 |
| Pilots, multi-engine | 64.4 | 65.9 | 69.4 | 73.3 | 74.9 | 2.31 |
| Pilots, fighter | 63.8 | 65.2 | 68.8 | 72.6 | 74.2 | 2.24 |
| Cadets | 63.6 | 65.2 | 69.2 | 73.1 | 74.7 | 2.45 |
| Bombardiers | 63.5 | 65.2 | 69.1 | 73.0 | 74.5 | 2.32 |
| Navigators | 63.5 | 65.2 | 69.2 | 73.3 | 75.0 | 2.46 |
| Observers | 63.8 | 65.4 | 69.1 | 72.8 | 74.2 | 2.44 |
| Flight engineers | 63.1 | 64.8 | 69.0 | 73.2 | 75.0 | 2.51 |
| Gunners | 62.4 | 64.2 | 68.3 | 72.2 | 73.7 | 2.43 |
| Radio operators | 63.0 | 64.6 | 68.3 | 71.8 | 73.2 | 2.37 |
| Basic trainees† | 62.5 | 64.2 | 68.6 | 72.7 | 74.7 | 2.61 |
| Army personnel: | | | | | | |
| Inductees less than 20 years old† | 62.4 | 64.3 | 68.7 | 73.1 | 74.9 | 2.66 |
| Inductees more than 20 years old† | 62.7 | 64.6 | 69.0 | 73.4 | 75.2 | 2.65 |
| Separatees, white‡ | 62.7 | 64.3 | 68.5 | 72.6 | 74.5 | 2.52 |
| Separatees, Negro‡ | 62.3 | 64.0 | 68.0 | 72.2 | 74.0 | 2.58 |
| Marine Corps personnel** | 64.4 | 66.1 | 69.7 | 73.5 | 74.5 | 2.18 |
| Recruits†† | 63.0 | 64.6 | 68.6 | 72.5 | 74.1 | 2.40 |
| Navy personnel†† | 64.1 | 65.7 | 69.7 | 73.5 | 75.1 | 2.34 |
| Recruits, 18 years old†† | 62.8 | 64.5 | 68.5 | 72.6 | 74.2 | 2.50 |
| Recruits, 17-25 years old§§ | 62.9 | 64.6 | 68.6 | 72.7 | 74.4 | 2.48 |
| Enlisted men, general‡‡ | 63.2 | 64.8 | 69.5 | 73.5 | 75.5 | 2.48 |
| Pilots, aircraft*** | 65.1 | 66.2 | 69.9 | 73.9 | 75.3 | 2.33 |
| Cadets, aviation‡‡ | 65.1 | 66.6 | 70.1 | 73.8 | 75.2 | --- |
| Army aviators††† | 64.4 | 65.8 | 69.4 | 73.3 | 74.8 | --- |

ANTHROPOMETRIE

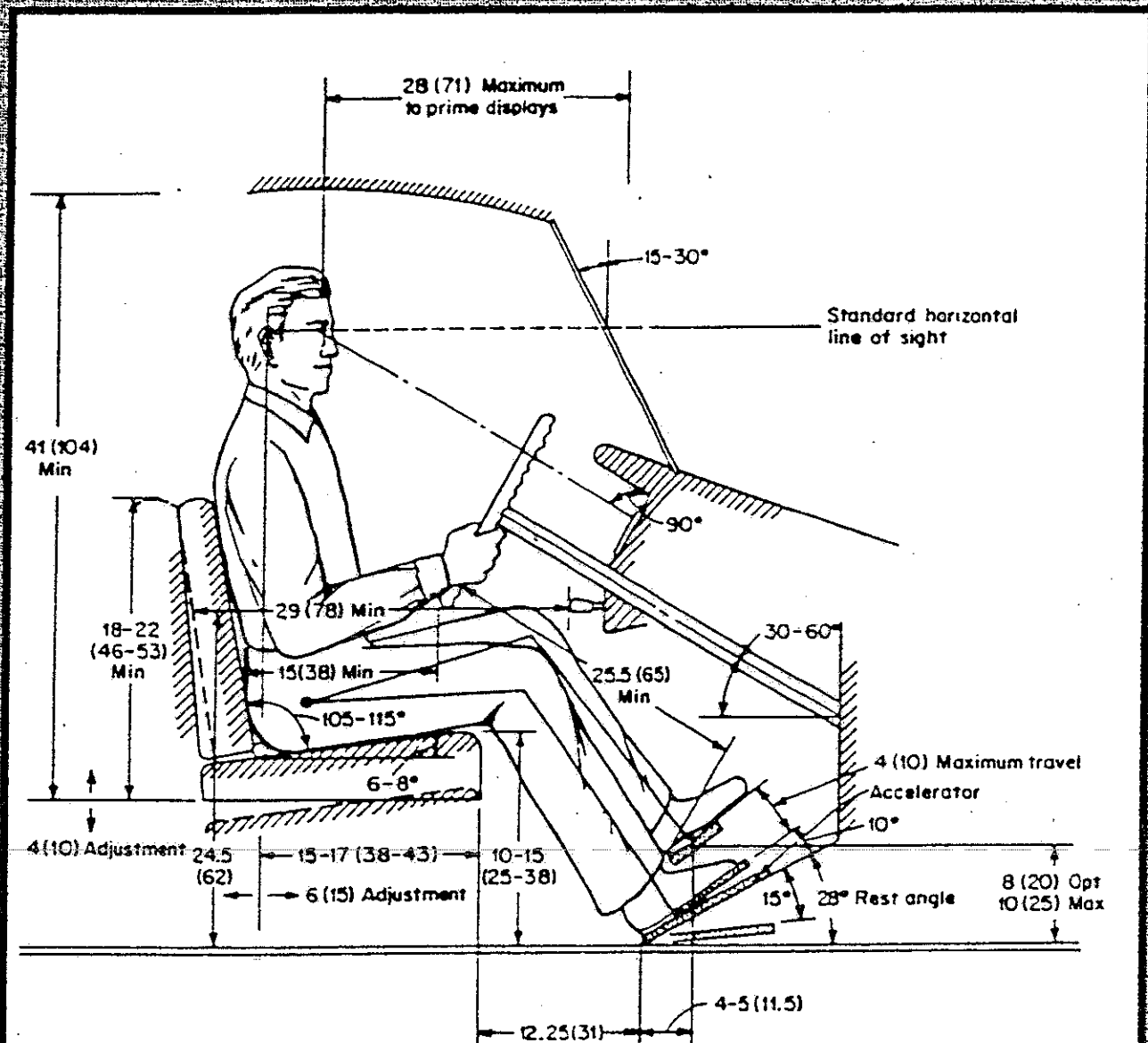
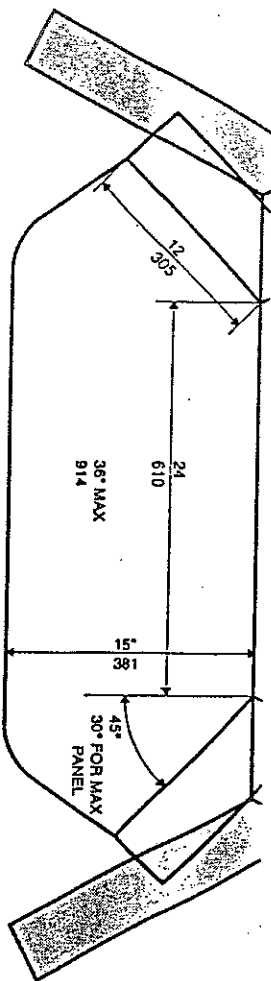
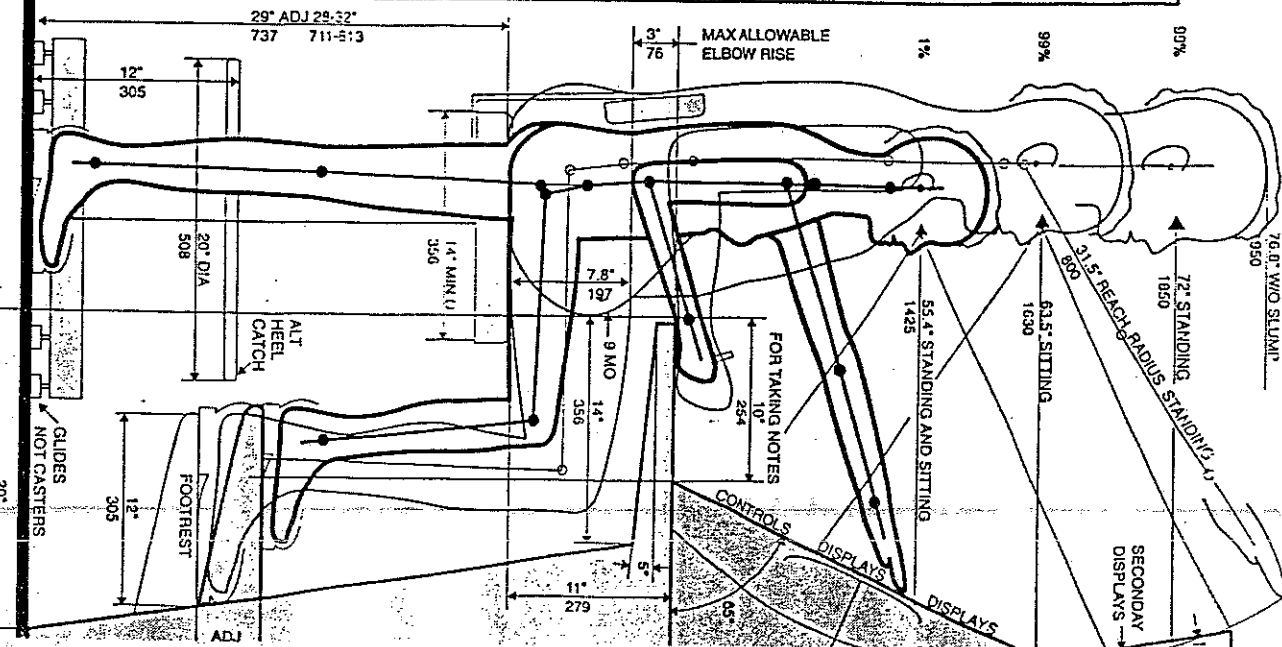
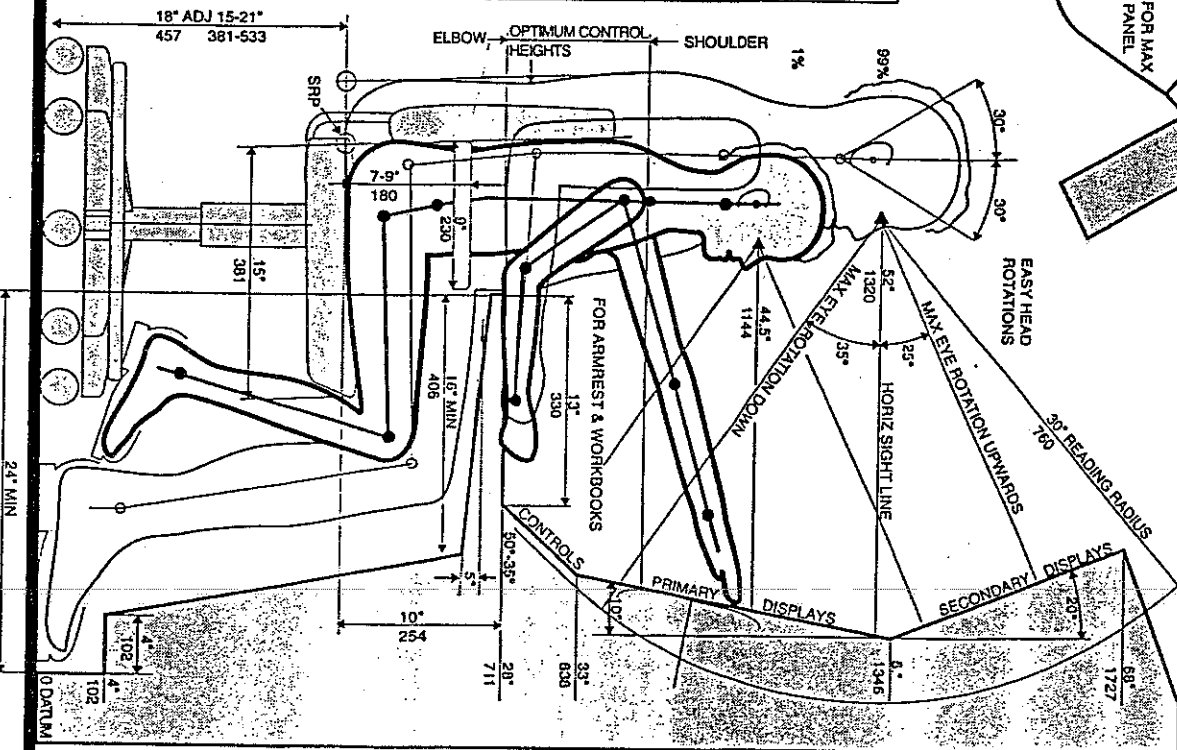
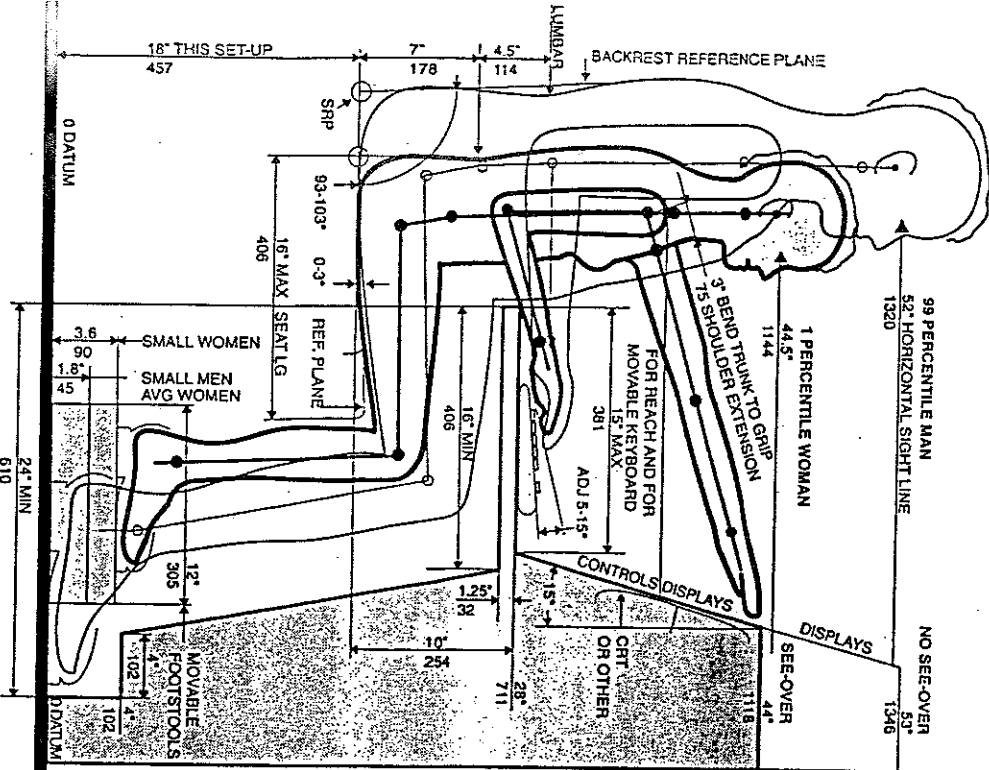


FIGURE 12-17

Recommended design features of vehicle cabs. (These features are designed to be suitable for persons between the 5th and 95th percentiles of operators.) (Source: Adapted from Van Cott & Kinade, 1972, fig. 9-11.)



WRAP-AROUND CONSOLE



SEE-OVER CONSOLE

COMPOUND CONSOLE

SIT/STAND CONSOLE